MLPA Master Plan Science Advisory Team

Outputs from Bioeconomic Model Evaluations of BRTF Recommended Marine Protected Area Proposals: Biomass and Fishery Yield

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Table 1a: Total Biomass and Total Fishery Yield. Total biomass and fishery yield predicted for each of seven species from bioeconomic modeling evaluations of marine protected area (MPA) proposals recommended by the Marine Life Protection Act (MLPA) Blue Ribbon Task Force (BRTF) for the north coast study region, including the Revised Round 3 North Coast Regional Stakeholder Group MPA Proposal (RNCP) and the North Coast Enhanced Compliance Alternative MPA Proposal (ECA). The total biomass of each species is estimated at equilibrium for each square kilometer of the study region. Values are scaled relative to total unfished biomass such that values of 0 indicate no biomass and values of 1 indicate maximum unfished biomass. Total fishery yield is the total harvest of each species relative to maximum sustainable yield (MSY) of the species with the existing MPAs (proposal 0). Seven species were modeled: Black rockfish, brown rockfish, cabezon, redtail surfperch, Dungeness crab, red abalone and red sea urchin. Model results were calculated for 3 different fishery management scenarios; the results in this table are from the MSY-type management scenario. Total biomass and yield are the average across six of these modeled species. Due to the unique characteristics of the Dungeness crab fishery, this species is presented separately in Table 1b.

MPA Proposals	Species	Total Biomass	Total Fishery Yield
P0	Black Rockfish	0.47	1
P0	Brown Rockfish	0.42	1
P0	Cabezon	0.38	1
P0	Red Abalone	0.38	1
P0	Red Sea Urchin	0.38	1
P0	Redtail Surfperch	0.41	1
RNCP	Black Rockfish	0.47	0.98
RNCP	Brown Rockfish	0.45	0.94
RNCP	Cabezon	0.39	0.98
RNCP	Red Abalone	0.39	1
RNCP	Red Sea Urchin	0.39	0.98
RNCP	Redtail Surfperch	0.42	0.98
ECA	Black Rockfish	0.48	0.98
ECA	Brown Rockfish	0.45	0.93
ECA	Cabezon	0.40	0.96
ECA	Red Abalone	0.41	0.98
ECA	Red Sea Urchin	0.41	0.95
ECA	Redtail Surfperch	0.45	0.89

Table 1b: Total Biomass and Total Fishery Yield for Dungeness Crab. Total biomass and fishery yield predicted for Dungeness crab from bioeconomic modeling evaluations of MPA proposals recommended by the MLPA Blue Ribbon Task Force for the north coast study region. The total biomass of Dungeness crab is estimated at equilibrium for each square kilometer of the study region. Values are scaled relative to total unfished biomass such that values of 0 indicate no biomass and values of 1 indicate maximum unfished biomass. Total fishery yield is the total harvest of Dungeness crab relative to maximum sustainable yield (MSY) with the existing MPAs (proposal 0). Model results were calculated for 3 different fishery management scenarios; the results in this table are from the MSY-type management scenario.

MPA Proposals	Species	Total Biomass	Total Fishery Yield
P0	Dungeness Crab	0.26	1
RNCP	Dungeness Crab	0.29	0.96
ECA	Dungeness Crab	0.3	0.95